

**AGENDA:** May 11, 2004

**7.2**

**CATEGORY:** New Business

**DEPT.:** Public Works

**TITLE:** Caltrain Electrification Environmental  
Impact Report

### **RECOMMENDATION**

Authorize the Mayor to send a letter to the Peninsula Corridor Joint Powers Board and Caltrain staff outlining the comments discussed in the analysis section of this report.

### **FISCAL IMPACT**

There is no direct fiscal impact associated with this recommendation. However, construction of an electrified Caltrain system will cost approximately \$456 million and, depending on the type of rolling stock purchased, the total project cost will be \$600 million to \$860 million. Although some of the project cost does cover improvements to existing infrastructure, funds for grade-separated crossings have not been included in this project.

The Santa Clara Valley Transportation Authority has included Santa Clara County's share of the electrification project in the Valley Transportation Plan 2030; however, it is unclear when and how much funding will be available considering other project priorities are much higher than electrification. Funding from San Mateo County is also uncertain as an additional sales tax would need to be passed by voters in November. San Francisco County funding may also be limited. Some of the funding shortfalls may be recovered through State grant moneys, depending upon availability.

An electrified system will also experience higher operating costs due to additional maintenance associated with the new infrastructure, including power distribution facilities and the overhead contact system. Additional operating revenue will need to be identified to cover these increases.

### **BACKGROUND**

One of the long-term goals of the Peninsula Corridor Joint Powers Board (JPB) is to electrify the Caltrain line. According to the JPB, the goal of electrification is to improve train performance, reduce travel time, reduce noise, improve regional air quality and modernize Caltrain. In 2000, the JPB initiated the environmental impact review process for this project, and in April 2004, Caltrain staff released the draft Environmental Impact Report (EIR). The draft EIR is currently in the public comment phase, and Caltrain staff is in the process of holding public

meetings in each county. The public comment period will end on May 25, 2004. Attachment 1 to this report contains a summary of the EIR.

### Alternatives

The EIR includes two project alternatives: (1) the no project alternative; and (2) electrification. Both alternatives assume improvements to existing infrastructure, including station improvements, track work, signal upgrades and bridge rehabilitation. The electrification alternative also includes three scenarios based on the type of rolling stock used.

- **Scenario 1:** Replace the existing fleet of diesel locomotives with electric locomotives and utilize the existing fleet of gallery cars (\$145 million).
- **Scenario 2:** Replace the entire fleet of rolling stock with Electric Multiple Units (EMUs) where each car has electric motors driving each axle (\$373 million).
- **Scenario 3:** Replace the entire fleet of rolling stock with electric locomotives and new gallery cars similar to the Bombardier cars used for the Baby Bullet service (\$408 million).

### Impacts

The document did not identify any significant or unavoidable impacts from this project. Based on the data provided, the EIR identifies the following benefits of the electrification alternative:

**Increased Ridership:** According to the EIR, by 2020, ridership will increase slightly under the electrification alternative as a result of improved efficiency and decreased travel times. Ridership in 2020 for the no project alternative is projected to be 53,000 trips per day. Under the electrification alternative, ridership will increase 8 percent or 4,000 additional trips. 2003 data shows current ridership at 27,000 trips per day.

**Reduced Travel Times:** Riders traveling between Gilroy and San Francisco will experience an eight-minute time savings, and riders traveling between San Jose and San Francisco will experience a two-minute time savings.

**Reduced Noise:** With the elimination of the diesel locomotive, noise levels will be reduced. According to the EIR, severe impacts of noise will be reduced based on Federal Transit Administration noise level standards. The level of noise reduction achieved will be dependent on the type of rolling stock used.

**Improved Air Quality:** The elimination of diesel locomotives will improve air quality along the Caltrain line by reducing emissions 87 percent to 94 percent. Although emissions will be shifted to power production facilities mostly outside of the Bay Area, the emissions produced by these facilities are stated to be less than emissions of diesel locomotives. The increase in ridership mentioned above will also result in approximately 86,000 less vehicle trips per year, resulting in further emissions reductions. However, the emissions reductions from decreased vehicle trips were not quantified in the EIR.

### Electromagnetic Fields

The EIR also addresses the issue of electromagnetic fields (EMFs). Based on data provided in the EIR, the EMFs generated by the electrified system are not significantly higher than existing background EMFs. Riders and employees aboard trains will experience increased exposure but less so than most household appliances. Additionally, studies cited by the EIR claim the low level EMFs generated by an electrified system have not been proven to cause any adverse health effects.

### ANALYSIS

Public Works Department staff initially reviewed the scope of the EIR in September 2000 and provided Caltrain staff with comments. A copy of the letter sent to Caltrain staff is included as Attachment 2. After review of the draft EIR, several of the original comment areas do not appear to be adequately addressed.

**Power Distribution Station Siting:** A primary concern is the proposed siting of a power distribution station, or paralleling station, in Mountain View. The EIR proposes to locate the paralleling station on the soon-to-be-constructed efficiency studios site. Caltrain staff did not contact the City regarding this location but have since been alerted to the matter and have indicated alternate locations for this facility may be available. Caltrain staff should also be encouraged to carefully review other proposed sites to ensure similar issues were not overlooked.

**Overhead Contact System:** The installation of an overhead contact system (OCS) will cause significant visual blight throughout the Caltrain corridor. However, the EIR does not identify this issue as a significant impact since overhead wires are "consistent with the visual quality of an active rail corridor." Residents and businesses along the corridor may disagree with this finding. Considering the visual impacts of the OCS cannot be avoided, the EIR should identify this impact as an unavoidable significant impact. This is especially true considering trees (which currently screen homes and businesses from the railroad) will need to be removed in certain locations to allow for the placement of the OCS system. Computer renderings of the OCS are included as Attachment 3.

**Energy Production and Capacity:** Sufficient energy production and transmission capability has been an issue in California for several years. The EIR states energy production will be sufficient to support operation of an electrified Caltrain system. However, the document does not provide data to substantiate this claim nor does the EIR include a discussion about the potential impacts if sufficient power generation or transmission capacity cannot meet the needs of the system.

**Noise:** Complaints received by the City from residents about Caltrain typically involve wheel squeal, vibrations, train horns and whistles – not diesel engine noise. Although train horns and vibrations are identified in the document, the EIR does not identify wheel squeal as an impact or suggest possible mitigation measures.

**Range of Alternatives:** Another issue of note is the omission of the clean diesel engine alternative. Other than the no project alternative, the EIR identifies this as the least expensive alternative to implement and with measurable emissions reductions. However, this alternative was dismissed as it did not meet the goal of the project, which is to electrify the Caltrain line. Considering the cost of electrification (\$600 million to \$860 million), clean diesel engines should be considered if funding is not secured or is delayed. Clean diesel engines could be purchased as older diesel locomotives need replacement or overhaul, acting as an interim measure to address air quality issues.

In addition to these comments, the EIR has raised new concerns, which include:

**Construction Schedule and Impacts:** The construction of the electrified system will last approximately three years as described in the preliminary construction schedule included as Attachment 4. Construction may take place at night and weekends to minimize disruptions to service. However, the construction noise will affect homes and businesses within 125', and vibrations will affect an area of up to 130'. The EIR does list mitigation measures, such as the use of temporary noise barriers and newer construction equipment with modern sound and vibration abatement measures. Caltrain staff should be encouraged to follow each of the recommended mitigations and should also consider temporarily relocating residents who are most impacted by noise to hotels or apartments away from the construction area.

**Grade Separations:** Grade-separated crossings provide improved railroad and vehicle roadway safety, decreased traffic congestion, decreased train travel times, and increased efficiency of the railroad and roadway. Despite these benefits, the electrification project does not include construction of new grade separations.

**High Speed Rail:** The EIR states electrification of the system will "set the stage" for the California High Speed Rail (HSR) project. However, if constructed, the HSR project will require a grade separated and four-track alignment along the entire Caltrain Corridor.

Considering the Caltrain electrification plan does not call for grade separations or a four-track alignment, the EIR should deemphasize this project's connection to the HSR project.

**Electric Multiple Units:** Although EMUs are used throughout Europe, the units currently manufactured do not meet Federal Railroad Administration standards as there are no American manufacturers of EMUs nor are there any units in use in the United States. If EMUs are selected, Caltrain staff would need to work with manufacturers to develop units which comply with Federal regulations. It is unclear if the EMU scenario incorporates possible cost increases which may arise as a result of manufacturing specialized units to meet U.S. standards.

**Transbay Terminal Project:** The Transbay Terminal Project EIR was certified in April 2004. A key component of this project is to extend Caltrain from the existing 4th and King Street into downtown San Francisco under the Transbay Terminal. In order for Caltrain to enter the Transbay Terminal, electrification of Caltrain will be necessary or Caltrain will need to purchase dual mode diesel engines to allow trains to enter the underground terminal. Dual mode engines can run on either on-board diesel engines or direct electrical power. Although the Transbay Terminal project is briefly discussed in the Caltrain EIR, there is no mention of the need to electrify Caltrain or purchase new diesel engines for this project to be successful.

## **CONCLUSION**

Although the EIR addresses each of the CEQA impact areas, the issues discussed above should be addressed in the final EIR. Staff recommends the Council authorize the Mayor to send a letter to the JPB and Caltrain staff highlighting the comments discussed above.

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Attachments: 1. EIR Summary  
2. Letter to Caltrain Staff

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3. Digital Renderings of the OCS
4. Proposed Construction Schedule

cc: TPM, TE, F/c